Investigating Burnout among University Students in a Post-Disaster Environment: Was there enough Support?

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By Sonja Rae

Research Supervisors:

Dr. Joana Kuntz, University of Canterbury

Dr. Katharina Näswall, University of Canterbury

University of Canterbury

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Abstract

Tertiary students, not just working populations, might be experiencing feelings of burnout following the Christchurch earthquakes of 2010 and 2011. In the aftermath of a major disaster, the gap between the resources available to handle pressures (e.g., support) and the demands inherent in the pursuit of an academic degree (e.g., heavy workload) may lead to feelings of burnout among students. This study hypothesised that burnout dimensions (emotional exhaustion and disengagement) would be related to students' perceptions of immediate institutional support, extended institutional support, peer support, family support, and work overload. Additionally, it was proposed that institutional and social support would moderate the relationship between work overload and burnout. Two hundred and seventy one third and fourth year students were sampled using an online questionnaire. These particular students were expected to be at greater risk of emotional exhaustion and academic disengagement because they were at the earliest stage of their tertiary education when the major earthquakes first hit. Family support and extended institutional support were found to be associated with decreased levels of emotional exhaustion and disengagement. Meanwhile, work overload was found to be related to increased levels of emotional exhaustion and disengagement. Furthermore, both peer support and immediate institutional support were found to have a moderating effect on the relationship between work overload and disengagement. This study has exposed unique findings which contribute to burnout research especially in a post-disaster context, and raises the importance of providing the right types of support for individuals who are particularly dealing with the consequences of a natural disaster.

On 4 September, 2010 a quiet early morning was interrupted by a 7.1 magnitude earthquake which shook New Zealand's third largest city, Christchurch. While there were no reported deaths and merely a few injuries, Christchurch suffered infrastructural damage as a result of the severe shaking and soil liquefaction. The aftershocks continued for a few months, with some measuring over 4.0 on the Richter scale, but the majority of shakes had calmed down. However, on 22 February, 2011 the Garden City was struck by another major earthquake. At 12:51pm, a 6.3 magnitude earthquake caused more destruction than the September earthquake killing over 180 residents due to its shallow 5km depth. Five thousand houses were set for demolition, and a similar number of homes were subject to further assessments to determine their inhabitability (Wareham & Bourke, 2012). The February earthquake damaged over 100,000 houses and 10,000 houses required demolition (Tait, 2011). Furthermore, Christchurch lost 60% of its business district (Crowe, 2011). Hence, many individuals lost their homes and workplaces as a result of the damage.

Over 12,900 earthquakes and aftershocks have strike the Canterbury region in just under three years (Christchurch Quake Map, Jan, 2014). Consequently, Christchurch residents have been faced with significant unpredictability and changes. Such changes for residents include one or more of the following: job loss, financial strain, and lowered sense of safety (Kaniasty & Norris, 1993). Exposure to uncontrollable and unpredictable events is known to induce a variety of incapacitating psychological consequences (Job, 2002).

It can be psychologically and physically depleting for individuals to frequently experience earthquakes because they are continuously being frightened (Crowe, 2011). In addition to other well-reported health-related problems, such as Posttraumatic Stress Disorder (PTSD), cognitive disruption, depression, and anxiety (Altindag, Ozen, & Sir, 2005; Bödvarsdóttir & Elklit, 2004; Dorahy, & Kannis-Dymand, 2011; Fan, Zhang, Yang, Mo, & Liu, 2011; Helton, Head, & Kemp, 2011; Kwon, Maruyama, & Morimoto, 2001; Yuan et al.,

2013), the on-going exposure to stress from the earthquakes may have had other long-term effects on the psychological health of residents in Canterbury (i.e., burnout). The burnout phenomenon has typically been investigated among professional groups (e.g., school teachers, healthcare professionals) (Gingras, De Jonge, & Purdy, 2010; Kalliath, O'Driscoll, Gillespie, & Bluedorn, 2000; Kokkinos, 2007; Loonstra, Brouwers, & Tomic, 2009; Louw, George, & Esterhuyse, 2011; Mohammad Azeem, 2013; Pas, Bradshaw, & Hershfeldt, 2012), but few studies to date have examined burnout among university students (for exceptions, see Maroco & Campos, 2012; Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002; Weckworth & Flynn, 2006), and no studies have examined this psychological health outcome among students following a natural disaster.

Under normal circumstances, university students may suffer from burnout because of learning conditions that demand extremely high levels of effort (e.g., course workload) and may not offer supportive resources that would accommodate effective coping (e.g., sufficient contact hours with lecturers) (Neumann, Finaly-Neumann, & Reichel, 1990). Since students within the Canterbury region have experienced on-going earthquakes whilst pursuing their university studies, it is plausible that there is a prevalence of burnout among students at The University of Canterbury (UC).

Research suggests that perceived social support is a key resource in maintaining individuals' psychological health in response to stress (Beehr, Farmer, Glazer, Gudanowski, & Nair, 2003; Frese, 1999). Social support can directly reduce strain by providing comfort to the person, and it can have a moderating effect where the relationships between stressors and strains are weakened (Beehr et al., 2003; Maslach, Schaufeli, & Leiter, 2001). Inadequate social support can result in strain, as individuals are depleted of needed resources to cope with stressors, which can lead to burnout (Galek, Flannelly, Greene, & Kudler, 2011).

Although current research suggests that social and institutional support are protective factors for individuals who are more susceptible to burnout, predominantly among working populations (Lambert, Altheimer & Hogan, 2010; Byron & Peterson, 2001; Etzion, 1984; Hombrados-Mendieta, & Cosano-Rivas, 2013; Wind & Komproe, 2012), the literature exploring the prevalence of burnout among university students, especially as a repercussion of a natural disaster or major stressor, is limited. For this reason, this study will investigate perceptions of social and institutional support as predictors of burnout.

Research has also shown that work overload is a strong predictor of emotional exhaustion (Leiter & Maslach, 2009; Maslach et al., 2001). However, research exploring perceptions of work overload and its psychological health outcomes (e.g., burnout) in a post-disaster environment is scarce. Work overload is relevant to investigate as a predictor of burnout since university students may have dealt with additional academic demands and study responsibilities brought upon from the earthquakes.

Given the scarce burnout research among student groups, particularly under uncertain or highly stresssful contexts, the present study aims to contribute to the extant literature by focusing on university students who have been exposed to a natural disaster. Hence, this study will explore the role of support and workload on the experience of burnout among university students in a disaster context.

Research Framework

Burnout

As a well-researched topic in the psychological literature, burnout is a work-related psychological health impairment resulting from prolonged exposure to stress, and it is comprised of three facets: emotional exhaustion, cynicism and reduced personal accomplishment or efficacy (Awa, Plaumann, & Walter, 2010). Emotional exhaustion reflects

a lack of energy towards everyday tasks (De Cuyper, Raeder, Van der Heijden, & Wittekind, 2012). The feelings of being overextended and depleted of physical and emotional resources are symptoms of emotional exhaustion (Maslach et al., 2001). Cynicism is a pessimistic attitude or detachment from work (De Cuyper et al, 2012). Unconcerned, negative and detached feelings to numerous aspects of one's job, including coworkers, are symptoms of cynicism (Maslach et al., 2001). Lastly, reduced personal accomplishment is reflected on negative self appraisal of one's competences and refers to a person's lowered sense of efficacy regarding their job tasks (Bres, Salanova, & Schaufeli, 2007; De Cuyper et al, 2012). Feelings of incompetence, lack of achievement or decreased work performance and productivity can be symptoms of reduced personal accomplishment (Maslach et al., 2001).

A scale that has strong psychometric properties and is the most widely used by researchers for measuring burnout is the Maslach Burnout Inventory (MBI) (Maslach et al., 2001). It has been used in more than 90% of all empirical burnout studies in the world (Kristensen, Borritz, Villadsen, & Christensen, 2005). According to Maroco and Campos (2012), research on student burnout has used the Maslach Burnout Inventory – General Survey (MBI-GS; Schaufeli, Leiter, Maslach, & Jackson, 1996) or the MBI-Student Survey (MBI-SS; Schaufeli et al., 2002). The MBI identifies burnout as a psychological effect of prolonged stress that is occuring from work (Cheng, Chen, Chen, Burr, & Hasselhorn, 2013). The MBI measures burnout through three components of emotional exhaustion, depersonalisation and reduced personal accomplishment (Cheng et al., 2013). Depersonalisation is characterized by a callous, negative and detached attitude (Salanova, Llorens, García-Renedo, Burriel, Bresó, & Schaufeli, 2005), therefore this construct is closely related to cynicism. A criticism is that some of the MBI items show cultural bias and diverse versions of the tool have caused confusion with regards to translating the three burnout components (Kristensen et al., 2005).

From focusing on the varied criticisms of the MBI, the two-factor Oldenburg Burnout Inventory (OLBI) was developed by Demerouti, Bakker, Vardakou, and Kantas (2003) and later adapted by Maroco and Campos (2012). This inventory is a valid and reliable alternative to the MBI (Demerouti et al., 2003; Maroco & Campos, 2012).

The OLBI identifies and assesses burnout through levels of exhaustion and disengagement (Cheng et al., 2013). Exhaustion refers to an effect of severe physical, emotional and cognitive strain as a long-term result of exposure to certain job demands (Demerouti, Mostert, & Bakker, 2010). Disengagement is defined as detaching oneself from work in general (Demerouti et al., 2010). Disengagement is similar to cynicism as they both refer to detachment from work, as previously defined. There is acceptable evidence for internal consistency (α= .74 to .87) of the OLBI (Halbesleben & Demerouti, 2005). It is similar to the MBI-GS because both tools are created to reflect the concept of burnout that is not limited to human service professions, with scale items that apply to any professional group and student populations (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

Student burnout is best defined as physical and psychological exhaustion related to course-work activities and by cynicism and disengagement toward the course-work (Maroco & Campos, 2012). Therefore, the OLBI is a more appropriate instrument for measuring student burnout. Additionally, the OLBI appears to be more suitable for research on individuals whose job mainly involves processing information (Innstrand, Langballe, Falkum, & Aasland, 2011). This relates to students and how they are required to process information learnt from their academic courses. On account of these findings and the information that has been previously mentioned, burnout is defined and measured as exhaustion and disengagement in this study. Hence, this study will use the OLBI to assess burnout.

The current study will take the burnout dimensions of emotional exhaustion and disengagement as central variables, and explore their relationships with support variables and work overload among university students in a disaster context. Furthermore, the present study will examine whether the support variables play a moderating role in the relationship between work overload and burnout.

Predictors of Burnout

Perceptions of Social and Institutional Support

A natural disaster is not under human influence. This makes it difficult to prepare for, or blame anyone for the damage it causes; but individuals can signal that they are lacking support from others (Bödvarsdóttir & Elklit, 2004). Social support plays a pivotal role in determining the degree to which individuals recover or continue to be afflicted by psychological stress symptoms (e.g., PTSD, depression, anxiety) after a disaster (Wahlström, Michélsen, Schulman, & Backheden, 2013). Perceived social support encourages good psychological health and protects it in times of stress (Norris & Kaniasty, 1996). Furthermore, social support not only decreases the possibility of strain among working adults, but also acts as a coping mechanism when strain does occur (Halbesleben, 2006) and can improve well-being (Neumann et al., 1990).

Most individuals who experience stress from disaster situations prefer to call upon friends and family for support (Tyler, 2006). Receiving low levels of social support and having to provide social support to other individuals may be a source of strain which can worsen in the circumstance of a natural disaster (Tyler, 2006). However, regarding disaster research, not many studies have distinctively examined the psychological and social benefits of received support (Kaniasty, 2012). Furthermore, there are only a few studies which focus on social support experienced by students suffering from long-term stress exposure (Mallinckrodt &

Leong, 1992; Stokes & Wilson, 1984; Weckworth & Flynn, 2006), and these studies were not conducted under high-stress conditions, such as a post-disaster context.

To address the gap in the literature, this study will explore students' perceptions of their peer and family support in a post-disaster context, and its relationship with burnout. Social support may come from different sources (e.g., peers and family), which can have distinct effects on demands, and have differential relationships with the dimensions of burnout (Halbesleben, 2006). For example, Ray and Miller (1994) found that increased levels of family support and perceptions of peer support were associated with higher levels of emotional exhaustion among human service workers. Whereas Halbesleben (2006) found that work-related sources of social support (e.g., coworkers or academic peers) was more strongly related to exhaustion than depersonalisation; and nonwork sources of social support (e.g., family) was more strongly related to depersonalisation than exhaustion. Individuals' family members could offer support that would encourage them emotionally and prevent them from withdrawing from work (similar to depersonalisation) (Halbesleben, 2006). Although family members may be caring about an individual's demands at work, they may actually be unable to provide tangible support that would assist in resolving those work demands (Halbesleben, 2006). Whereas co-workers are in ideal positions to provide support because of their understanding of the stressors intrinsic in the workplace (Halbesleben, 2006; Ray & Miller, 1994). Peers could relieve work stress by sharing information and resources or offering suggestions that could lead to reductions in the strain at work (Halbesleben, 2006; Ray & Miller, 1994). This theory could be applicable to peer support in an academic work context. Hence, this study will measure family and peer support as separate variables.

Peer Support.

In occupational settings, co-worker support is believed to ease stress, which is a major cause of burnout, and help individuals to create a sense of community (Toarmina & Law, 2000). Furthermore, support from colleagues can allow a job to seem more interesting and meaningful (Lambert et al., 2010), and prevent employees from developing a cynical, detached attitude towards their work (Bakker, Van Emmerik, & Van Riet, 2008). The support from colleagues has been found to have a significant negative relationship with emotional exhaustion, and depersonalisation, through the discussion of problems and information sharing (Janssen, Schaufeli, & Houkes, 1999; Lambert et al., 2010; Yildirim, 2008). Though research to date has focused primarily on peer support in professional settings, it is plausible that student burnout will be associated with perceived social support from student peers. Students have a shared sense of the overall university experience, from academic work to social life, and are well positioned to provide support to each other. Sharing also the experience of a long-term stressor, such as a protracted natural disaster, may also provide this group with necessary understanding of the challenges faced by their peers, and facilitate help-seeking behaviours.

Hypothesis 1: Perceptions of peer support will be negatively related to a) emotional exhaustion and b) disengagement.

Family Support.

Though the impact of social support from sources external to the workplace has not been extensively studied (Galek et al., 2011), the extant research suggests that support from family can help relieve the effects of being stressed from work (Lambert et al., 2010). Family support can have positive effects on psychological health outcomes (Cohen & Wills, 1985). With regards to psychological health effects, preliminary research found that family support was significantly related to emotional exhaustion (Yildirim, 2008). Family support can allow

a person to escape from work stress and to live a more balanced life (Cordes & Dougherty, 1993). For example, family can encourage the stressed individual to spend time away from the working environment, act as a source of emotional support and comfort, and fill a person's needs for affection and approval, of which may not be fulfilled in a professional context (Cordes & Dougherty, 1993). Family may have fundamental personal knowledge which can provide effective support for an individual who has emotional distress (Baruch-Feldman, Brondolo, Ben-Dayan, & Schwartz, 2002).

Relationships external to the workplace (i.e., family support) can play a pivotal role in assisting teachers in coping with job-related stress (Russell, Altmaier, & Van Velzen, 1987). To cope with the aftermath of a natural disaster, victims need all the support they can get (Kaniasty & Norris, 1993). In essence, family support may play a particularly important role with regards to a university student's psychological health outcomes in a post-disaster context. On the basis of the research mentioned earlier, it is plausible that perceived social support from family may represent a protective factor against student burnout.

Hypothesis 2: Perceptions of family support will be negatively related to a) emotional exhaustion and b) disengagement.

Institutional Support.

Research conducted in stable environments among secondary school students suggests that perceived institutional support is associated with lower levels of psychological strain and student burnout (Salmela-Aro, Kiuru, Pietikäinen, & Jokela, 2008).

Although research suggests that support can also mitigate stress, burnout, and help individuals overcome difficult situations, (e.g., a disaster context) (Bödvarsdóttir & Elklit, 2004; Kaniasty, 2012), this research has been largely conducted in occupational settings, and

has yet to address the impact of institutional support among students, particularly in a post-disaster environment.

An organisation can enhance resilience to stress following a traumatic event by providing supportive post-disaster practices (e.g., providing professional counselling services and recovery-oriented communications) (Shakespeare-Finch, 2006). For instance, in the aftermath of the terrorist attack of September 11, 2001, organisations which took actions of sending a concerned company-wide e-mail, organising a charity for donations towards disaster-related victims, or providing discussion forums to talk about the traumatic event, tended to have more satisfied employees within the workplace (Byron & Peterson, 2001). Similarly, supportive post-disaster practices implemented in a tertiary institution may prevent burnout among students after a traumatic event.

Institutional support (e.g., on-site counselling, financial assistance, providing water and food, and assignment extensions) is critical given that individuals often have limited access to essential resources immediately following a natural disaster. In addition, it is likely that the extended availability of institutional support will have a positive impact on the psychological health of students in the years following the first traumatic event as the recovery process unfolds (Wang, Shi, Ng, Wang, & Chan, 2011). This study will investigate whether perceptions of institutional (university) support – immediately after the disaster as well as extended support (over the three years since the first major earthquake) – are significantly related to reported student burnout levels.

It is necessary to separate immediate institutional support from extended institutional support to determine whether each have a distinct effect on the dimensions of burnout. Since stress effects may be both immediate and long-term, immediate institutional support may be different from extended institutional support, which could help with stress that develops later

on. Psychological intervention is frequently offered to disaster victims but is usually short-term and focuses on more immediate consequences of the disaster experience, whereas some disaster effects may be more chronic, and individuals might require support long after the acute disaster has occurred (Briere, & Elliott, 2000).

Hypothesis 3: Perceptions of immediate institutional support will be negatively related to a) emotional exhaustion and b) disengagement.

Hypothesis 4: Perceptions of extended institutional support will be negatively related to a) emotional exhaustion and b) disengagement.

Work Overload

Work overload can create a conflict in priorities. It is when individuals feel that there is an excessive amount of responsibilties upon them given the time available, abilities they have, and general absence of resources (Eatough, Chang, Miloslavic, & Johnson, 2011). Work overload is also defined as the extent to which individuals perceive that their time and resources to fulfil a role are insufficient (Örtqvist & Wincent, 2006). Individuals who feel overloaded may either experience their workload negatively, resulting in decreased performance levels, or they may feel motivated and increase their efforts to meet all their task demands (Eatough et al., 2011).

Importantly, work overload is one of the key predictors of burnout among working professionals (Nirel, Goldwag, Feigenberg, Abadi, & Halpern, 2008), in relation to both emotional exhaustion (Alarcon, 2011; Janssen et al., 1999; Jung 2013; Lee & Ashforth, 1996) and cynicism (Jung, 2013). The extant findings indicate that individuals feel more exhausted and have detached feelings towards work when they are experiencing work overload (Jung, 2013).

Since work overload has been linked to burnout in occupational settings, it is plausible that perceptions of work overload may also contribute to the burnout levels of university students. The present study will explore the linkages between perceptions of work overload and student burnout within a post-earthquake context. Even though this has not previously been studied in a post-disaster context, and very few studies focus on students, work overload is expected to be related to burnout similarly to previous research in organisational settings. Specifically:

Hypothesis 5: Perceptions of work overload will be positively related to a) emotional exhaustion and b) disengagement.

The Moderating Effect of Support

Support interacts with stressors to predict strain (Cohen & Wills, 1985). The buffering effect is shown by weaker interactions between work stressors and strains for individuals with more social support than for individuals with less social support (Beehr, Jex, Stacy, & Murray, 2000; Fried & Tiegs, 1993; Koeske & Koeske, 1989). The notion is that stressors (e.g., workload) are less capable of causing strains for individuals who have social support readily available (Beehr et al., 2000). Social support can interact with the experience of a workplace stressor to determine an individual's reaction to the stressful situation (Jimmieson, McKimmie, Hannam, & Gallagher, 2010). Specifically, social support protects the individual from the adverse effects of a work stressor because the fulfilment of social needs is significant for helping people cope with stressful situations (Jimmieson et al., 2010). For instance, support from colleagues can help a person to complete work in a timely manner and might therefore reduce the impact of work overload on burnout (Bakker, Demerouti, & Euwema, 2005).

Dyer and Quine (1998) found that high levels of support have a positive effect on burnout in conditions of high and low work demands. Conversely, an increase in job demands

(e.g., workload), and a decrease in job resources (e.g., support), may lead to burnout (Schaufeli, Bakker, & Van Rhenen, 2009).

Little evidence has investigated the buffering effect of social support on the impact of job stressors on burnout (El-Bassel, Guterman, Bargal, & Su, 1998). However, Koeske and Koeske (1989) found that social support, mainly support from co-workers, can buffer the negative impact of work-load on burnout. To our knowledge, there is no or little literature on testing the buffering effect of institutional support on the impact of job stressors on burnout. To add to existing literature, this study will test whether social support and institutional support moderate the relationship between work overload and student burnout.

Hypothesis 6: Peer support will moderate the relationship between work overload and a) emotional exhaustion, and b) disengagement. It is expected that at high levels of work overload, individuals reporting low peer support will experience significantly higher levels of burnout than individuals reporting high peer support.

Hypothesis 7: Family support will moderate the relationship between work overload and a) emotional exhaustion, and b) disengagement. It is expected that at high levels of work overload, individuals reporting low family support will experience significantly higher levels of burnout than individuals reporting high family support.

Hypothesis 8: Immediate institutional support will moderate the relationship between work overload and a) emotional exhaustion, and b) disengagement. It is expected that at high levels of work overload, individuals reporting low immediate institutional support will experience significantly higher levels of burnout than individuals reporting high immediate institutional support.

Hypothesis 9: Extended institutional support will moderate the relationship between work overload and a) emotional exhaustion, and b) disengagement. It is expected that at high

levels of work overload, individuals reporting low extended institutional support will experience significantly higher levels of burnout than individuals reporting high extended institutional support.

Method

Participants

The participants for this study consisted of 271 third and fourth year students (40% males and 60% females) who currently study at the University of Canterbury and who were at this university when the earthquakes occurred. Their mean age was 24 years (SD= 6.48). The recruited participants represented a variety of academic departments from Arts, Science, Engineering, Education, Law or Business.

Measures

All of the scale items can be viewed in full in Appendix C.

Burnout.

Burnout was assessed using the Oldenburg Burnout Inventory (OLBI) (Demerouti et al., 2003). The original instrument consists of 16 items which define two factors, emotional exhaustion and disengagement (Maroco & Campos, 2012). This instrument possesses good reliability with a Cronbach alpha of .77 for the emotional exhaustion scale and .73 for the disengagement scale (Maroco & Campos, 2012). The 16-item OLBI scale was adapted so that it was applicable for students. For example, “I feel tired before work” was changed to “I feel tired even before coming to University,” and “I feel emotionally drained at work” was changed to “I feel emotionally drained from doing academic work.” In order to ensure the applicability of the items to the student sample surveyed, this study used a 12-item version of the scale to measure student burnout (seven-items measuring emotional exhaustion and five-items

measuring disengagement). Participants were asked to indicate the extent to which they agreed with each statement using a five-point Likert-type rating scale (1 = *strongly disagree*, 5 = *strongly agree*). A comments box was displayed at the end of the section, in case participants wanted to justify their answers. High ratings on the scale are indicative of burnout.

Perceptions of social support.

Social support (peer and family) was assessed using an eight-item scale (with four items measuring family support and four items measuring peer support) adopted from O'Driscoll, Brough, and Kalliath's study (2004). The study of O'Driscoll et al. (2004) reported that this scale possesses good reliability with a Cronbach alpha of .89 for colleague support and .91 for family support. Participants were asked to indicate the extent to which they agreed with each statement using a five-point Likert-type rating scale (1 = *strongly disagree*, 5 = *strongly agree*). For peer and family support, high ratings on the scale indicate that students perceive that their peers and family were supportive over the past three years.

Perceptions of institutional support.

Immediate institutional support was measured using a five-item scale and extended institutional support was measured using an eight-item scale. These scales were both based on research by Byron and Peterson (2002), and O'Driscoll et al. (2004). Participants were asked to indicate the extent to which they agreed with each statement using a five-point Likert-type rating scale (1 = *strongly disagree*, 5 = *strongly agree*). For immediate institutional support, high ratings on the scale indicate that students perceive the university supported them in the immediate aftermath of the major earthquakes. For extended institutional support, high ratings on the scale indicate that students perceive the university has provided appropriate support over the past three years.

Work overload.

The present study used a seven-item scale to measure feelings towards academic work. This scale adapted items from two measures – 1) Beehr, Walsh, and Taber's (1976) scale for measuring role overload, and 2) Brown and Benson's (2005) scale for measuring work overload, which was originally developed by Price & Mueller's (1981) and later modified by Iverson (1992). The scale items of Beehr et al. (1976) are: 1) "I am given enough time to do what is expected of me on my job," 2) "it often seems like I have too much work for one person to do," and 3) "the performance standards on my job are too high" ($\alpha = .56$). The scale items of Brown and Benson (2005) are: 1) "my job leaves me with very little time to get everything done," 2) "My job requires me to work very hard (physically or mentally)," 3) "I often have to work overtime," and 4) "my job requires me to work too fast" ($\alpha = .81$). With these two measures, a seven-item scale was created. Item 1 was altered from "I am given enough time to do what is expected of me on my job" to "I am given enough time to do the work expected of me at the university." Item 2 was changed from "the performance standards on my job are too high" to "it happens fairly often that I have to complete assignments under a heavy time pressure." Item 3 was adjusted from "it often seems like I have too much work for one person to do" to read as "I often have too much to do at the university." Item 4 was modified from "my job requires me to work very hard physically or mentally" to "my courses require me to work hard mentally." Item 5 was modified from "I often have to work overtime" to "I often have to work long hours to complete course assignments". Item 6 was modified from "my job leaves me with very little time to get everything done" to "my university work leaves me with very little time to get everything done on time." Item 7 was changed from "my job requires me to work too fast" to "I often don't have time to finish my university assignments." Participants were asked to indicate the extent to which they agreed with each statement using a five-point

Likert-type rating scale (1 = *strongly disagree*, 5 = *strongly agree*). High ratings on the scale indicate that students are experiencing work overload regarding their university work.

Materials and Procedure

The online survey was created by using Qualtrics Survey Software (2013). In order to recruit participants, course lecturers were found via the University of Canterbury's website under *courses* and by clicking on *second semester courses*. Here, all the 300-level and 400-level courses taught at UC were listed which enabled the corresponding course lecturer or coordinator to be found. Each chosen course lecturer/coordinator was emailed to request him or her to distribute the online survey link to their students (see Appendix A). This way, permission was granted by professors for their students to take part in this study. The students then would have received an email from their lecturer with the URL link to the survey for them to complete at a time suitable for them. Participants were able to save the survey to come back to it again later. However, once participants had clicked on the link, the survey would expire after a week from the day they began filling it out. Data was collected over a one month period (July 2013). Ninety-six course coordinators were contacted and emailed the survey link. Only 18 course coordinators replied to my email to confirm that they had distributed the survey to their students; therefore additional coordinators may have forwarded on the survey without notifying me. Participant responses were entirely anonymous. There were 5,969 third and fourth year students (4,919 total 300-level, 1,381 total 400-level) who were enrolled at UC in 2013 (some students were simultaneously enrolled at more than one level). However, the survey's response rate cannot be calculated as the number of students that the survey was distributed to, is unknown.

The study's incentives were ordered and assigned to eight lucky participants. These eight winners were randomly chosen from the respondents. The incentives were Westfield

vouchers to the value of: 2x $200, 2x $100 and 4x $50. Participants were then notified by email of their winnings and were requested to reply within a week; otherwise the prize would be redrawn.

Information and Consent

Before commencing the online questionnaire, participants were required to read the information and consent page (see Appendix B). This stated: the purpose of the study, a brief procedure, incentives, potential risks and discomforts, potential benefits to participants and organisations, confidentiality, participation and withdrawal, and rights. Helpline contact details were also provided in case any participants felt distressed whilst or after completing the survey.

Ethics

Before commencing, the current research was reviewed and approved by the University of Canterbury Human Ethics Committee.

Results

Correlation Analysis

Table 1 presents the mean values, standard deviations, correlations and reliabilities (Cronbach alphas on the diagonal) for the relevant variables in this study. Work overload was found to be positively and significantly correlated with emotional exhaustion ($r = .57$, $p < .01$), and disengagement ($r = .38$, $p < .01$). This suggests that perceptions of work overload could be contributing to feelings of burnout. Emotional exhaustion was found to have significant negative correlations with immediate institutional support ($r = -.13$, $p < .05$), extended institutional support ($r = -.27$, $p < .01$), family support ($r = -.17$, $p < .01$), and peer support ($r = -.13$, $p < .05$). Disengagement was also found to have significant negative correlations with immediate institutional support ($r = -.13$, $p < .05$), extended institutional support ($r = -.26$, $p <$

.01), family support (r = -.25, p < .01), and peer support (r = -.20, p < .05). These findings suggest that perceptions of support are not contributing to feelings of burnout.

Table 1

Means, Standard Deviations, Correlations and Scale Reliabilities (in the diagonal)

Variable	**M**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Immediate Institutional Support	3.68	.56	*(.68)*						
2. Extended Institutional Support	3.45	.62	.58**	*(.81)*					
3. Family Support	4.17	.67	.26**	.27**	*(.79)*				
4. Peer Support	3.62	.69	.30**	.35**	.41**	*(.81)*			
5. Work Overload	3.20	.61	-.07	-.18**	-.06	-.06	*(.80)*		
6. Emotional Exhaustion	3.08	.67	-.13*	-.27**	-.17**	-.13*	.57**	*(.80)*	
7. Disengagement	2.57	.69	-.13*	-.26**	-.25**	-.20*	.38**	.62**	*(.75)*

Note. N= 271; * p < .05, ** p < .01

Demographics

Gender is important in the aetiology of burnout (Halbesleben, 2006; McCarty, Zhao, Garland, 2007; Purvanova & Muros, 2010). The means for burnout of female and male participants were compared using an independent samples t test. There were significant gender differences in emotional exhaustion (*M*= 2.93, *SD*= .72 for males; *M*= 3.18, *SD*= .62 for females; t = -3.07, $p < .01$) but not for disengagement (*M*= 2.54, *SD*= .69 for males; *M*= 2.59, *SD*= .70 for females; t = -.60). This finding indicates that there are gender differences for student burnout, where female students have higher levels of emotional exhaustion compared to male students. Since the results show that there is a significant difference between males and females for student burnout (emotional exhaustion), gender will be included in this study as a control variable.

Hypothesis Testing

Hypotheses 1-5 predicted that the IVs included in this study would be related to psychological strain (burnout). Hypotheses 6-9 predicted that support would moderate the relationship between work overload and burnout (emotional exhaustion and disengagement). Hierarchical multiple regression analysis was used to test all hypotheses, whereby the predictors of burnout were entered in Step 1, and the interaction terms were entered in Step 2. The results from the regression analysis are provided in Table 2. All variables were centred before the regression analysis was conducted. Unstandardized coefficients are presented as these are more accurate than standardized coefficients when interaction terms are included in the regression (Cohen, Cohen, West, & Aiken, 2003).

Main Effects

Gender was found to be positively and significantly related to only emotional exhaustion (B = .26, $p < .01$ Step 1; B = .27, $p < .01$ Step 2) and not to disengagement (B = .08, p = .31 Step 1; B = .07, p = .34 Step 2), suggesting that males and females experience higher

levels of emotional exhaustion than disengagement. After controlling for gender, the predictors entered in Step 1 explained 40% of the variation in emotional exhaustion, and explained 22% of the variation in disengagement.

Family support was negatively and significantly related to emotional exhaustion (B = -.12, p < .05 Step 1; B = -.13, p < .05 Step 2), suggesting that high levels of family support are associated with low levels of emotional exhaustion. This shows support for hypothesis 2a. Extended institutional support was negatively and significantly related to emotional exhaustion (B = -.19, p < .01 Step 1; B = -.19, p < .01 Step 2), suggesting that high levels of extended institutional support are related to low levels of emotional exhaustion. This shows that hypothesis 4a is supported. Work overload was positively and significantly related to emotional exhaustion (B = .59, p < .01 Step 1; B = .61, p < .01 Step 2), suggesting that high levels of work overload are linked with high levels of emotional exhaustion. This shows that hypothesis 5a is supported.

Family support was negatively and significantly related to disengagement (B = -.18, p < .01 Step 1; B = -.20 p < .01 Step 2), suggesting that high levels of family support are interrelated with low levels of disengagement. This shows that hypothesis 2b is supported. Extended institutional support was negatively and significantly related to disengagement (B = -.18, p < .05 Step 1; B = -.17, p < .05 Step 2), suggesting that high levels of extended institutional support are related to low levels of disengagement. This shows support for hypothesis 4b. Work overload was positively and significantly related to disengagement (B = .39, p < .01 Step 1; B = .43, p < .01 Step 2), suggesting that high levels of work overload are associated with high levels of disengagement. This shows support for hypothesis 5b.

Moderation Effects

The results of the moderation analysis are presented in Step 2 of Table 2. After controlling for gender, the variables in Step 2 explained a higher proportion of the variation in

emotional exhaustion, than the variables in Step 1, when the interaction terms were added but this was not a significant increase (ΔR^2 = .02; p = .16). However, the variables in Step 2 explained a significantly higher proportion of the variation in disengagement than the variables in Step 1, when the interaction terms were added (ΔR^2 = .05; p < .01).

It was expected that at high levels of work overload, individuals reporting low peer support will experience significantly higher levels of burnout than individuals reporting high peer support. The interaction between work overload and peer support was not significantly associated to emotional exhaustion (B = .14; p = .06), thereby hypothesis 6a was not supported.

However, the interaction between work overload and peer support was positively and significantly associated to disengagement (B = .21, p < .05). Figure 1 depicts the interaction between peer support and work overload. Although statistically significant, this was contrary to what was expected, since there was no buffering effect of support when work overload was high, but those with high levels of support reported less disengagement when work overload was low, than those with low levels of support. Hypothesis 6b was not supported.

It was expected that at high levels of work overload, individuals reporting low family support will experience significantly higher levels of burnout than individuals reporting high family support. The interaction between work overload and family support was not significantly associated to emotional exhaustion (B= .09; p = .30), or disengagement (B= .12; p = .24), thereby showing no support for hypotheses 7a and 7b.

It was expected that at high levels of work overload, individuals reporting low immediate institutional support will experience significantly higher levels of burnout than individuals reporting high immediate institutional support. The interaction between work overload and immediate institutional support was not significantly associated to emotional exhaustion (B= .16; p = .06), therefore hypothesis 8a was not supported.

However, the interaction between work overload and immediate institutional support was positively and significantly associated to disengagement (B= .39, p < .01). Figure 2 depicts the interaction between immediate institutional support and work overload. Although statistically significant, this was contrary to what was expected, since there was no buffering effect of support when work overload was high, but those with high levels of support reported less disengagement when work overload was low, than those with low levels of support. Hypothesis 8b was not supported.

It was expected that at high levels of work overload, individuals reporting low extended institutional support will experience significantly higher levels of burnout than individuals reporting high extended institutional support. The interaction between work overload and extended institutional support was not significantly associated to emotional exhaustion (B= .06; p = .45) or disengagement (B= .18; p = .06), therefore hypotheses 9a and 9b were not supported.

Table 2

Regression of Student Burnout on Predictors of Burnout (Controlling for Gender)

	Emotional Exhaustion		Disengagement	
	Step 1 (B)	Step 2 (B)	Step 1 (B)	Step 2 (B)
Control Variable				
Gender	.26**	.27**	.08	.07
Predictor Variables				
Work Overload	.59**	.61**	.39**	.43**
Family Support	-.12*	-.13*	-.18**	-.20**
Peer Support	.00	.01	-.07	-.07
Immediate Institutional Support	.03	-.00	.07	.01
Extended Institutional Support	-.19**	-.19**	-.18*	-.17*
WO x Family Support		.09		.12
WO x Peer Support		.14		.21*
WO x IIS		.16		.39**
WO x EIS		.06		.18
F	29.76**	18.70**	12.32**	9.70**
R^2	.40	.42	.22	.27
ΔR^2		.02		.05**

Note. WO= work overload, IIS= Immediate Institutional Support, EIS= Extended Institutional Support; * $p < .05$, ** $p < .01$

Figure 1. Effect of Peer Support on Work Overload and Student Burnout.

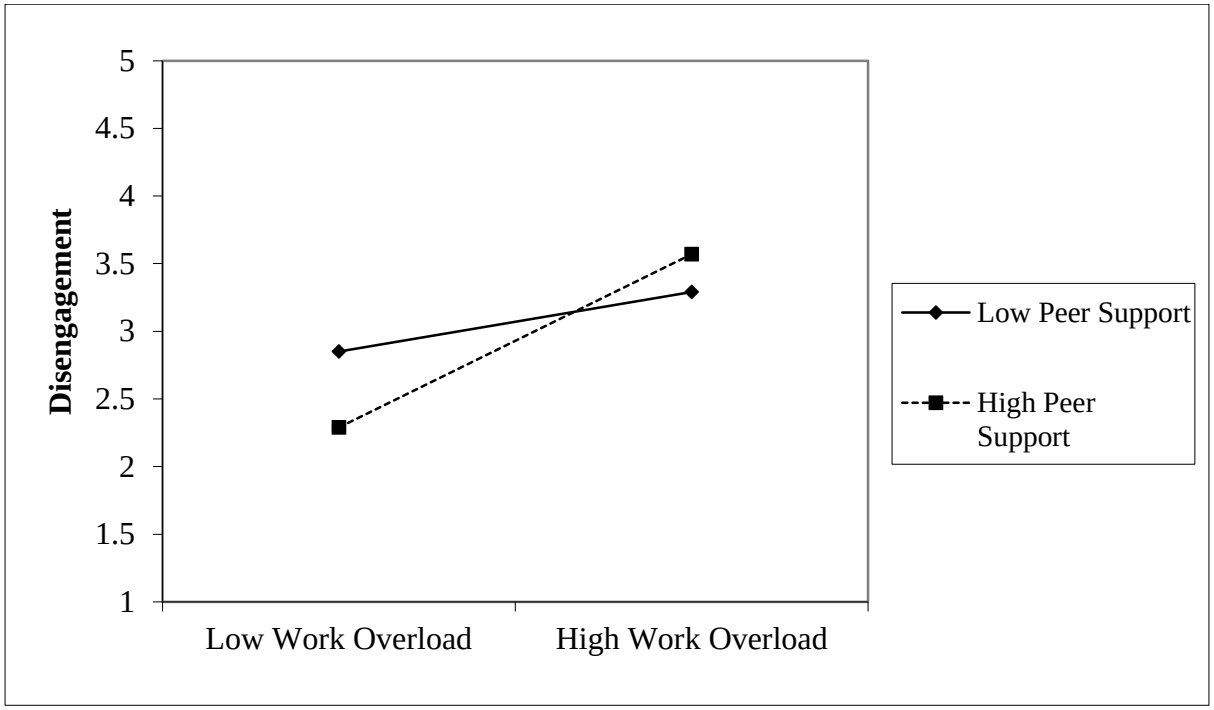
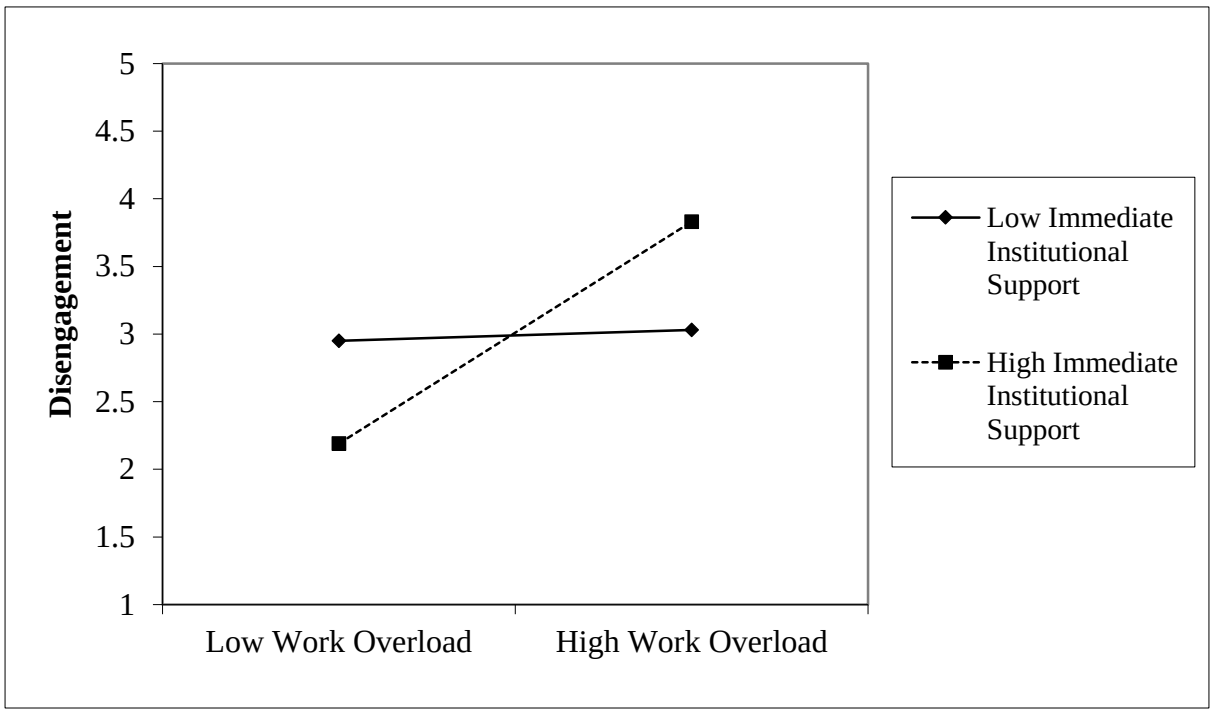


Figure 2. Effect of Immediate Institutional Support on Work Overload and Student Burnout.



Discussion

This research was conducted to investigate the impact of major disasters on students' psychological health. Specifically, UC students, not just working populations, might be experiencing feelings of burnout following the Christchurch earthquakes of 2010 and 2011. In the aftermath of a major disaster, the gap between the resources available to handle pressures (e.g., support) and the demands inherent in the pursuit of an academic degree (e.g., heavy workload) may lead to feelings of burnout among students. This study investigated the relationships between perceptions of institutional (university) support, social support, feelings of burnout and work overload among third and fourth year students at UC.

Summary of Main Findings

Supporting hypotheses 2a and 2b, family support was negatively and significantly related to both emotional exhaustion and disengagement, thereby indicating that high levels of perceived family support were associated with lower levels of experienced burnout. These findings are consistent with research suggesting that family support can positively influence psychological health outcomes (Cohen & Wills, 1985), and emotional exhaustion in particular (Yildirim, 2008). These findings contribute new knowledge to the literature as they reveal that in a post-disaster context, family support could play a pivotal role towards a tertiary student's psychological health outcomes, representing a protective factor against burnout following a traumatic event.

As hypotheses 4a and 4b were also supported, extended institutional support had a negative and significant relationship with both emotional exhaustion and disengagement. This indicates that high levels of perceived extended institutional support were associated with lower feelings of burnout. These findings replicate previous research that suggests perceived institutional support is associated with decreased levels of student burnout (Salmela-Aro et al.,

2008). The continuity of supportive post-disaster practices has been an essential aspect of recovery. Over the past three years, UC's supportive practices seem to have had a buffering effect, protecting students from burnout following the traumatic events. Examples of practices implemented and maintained throughout the recovery process include: decreased workload, assignment extensions, updated information regarding the UC recovery process via email, student involvement in the UC recovery process, new or repaired facilities (e.g., cafes, study rooms, lecture rooms, and recreational facilities), leisure activities on campus, health and fitness programs, and ongoing displays of emotional support for students (e.g., institutional communications reiterating the university's appreciation of the challenges and stress students are still experiencing years after the major earthquakes). These findings are invaluable since research has mainly been conducted in occupational settings, and relies primarily on data collected weeks or only a few months into the aftermath of a major disaster. This study underscores the key contribution of extended institutional support as a protective factor against student burnout in the years following a traumatic event, beyond the effects of immediate support.

In support of hypotheses 5a and 5b, work overload was positively and significantly related to emotional exhaustion and disengagement. High levels of perceived work overload were related to higher burnout feelings. This finding supports Jung's (2013) assertion that individuals feel more exhausted and have detached feelings towards work when they are experiencing work overload. The current study's results also support the findings that work overload is one of the key predictors of burnout (Nirel et al., 2008), namely emotional exhaustion (Alarcon, 2011; Janssen et al., 1999; Jung 2013; Lee & Ashforth, 1996). This study's findings are important as there is little or no research suggesting that perceptions of work overload are associated with the experience of burnout among students, particularly in a post-disaster context.

Peer support was found to be negatively and significantly correlated to both emotional exhaustion and disengagement. However, when work overload and other sources of support were controlled for, these relationships were no longer significant. Hence, hypotheses 1a and 1b were not supported. Although studies have primarily been conducted in occupational settings, this finding shows no consistency to previous research suggesting that support from colleagues can prevent employees from developing a cynical, detached attitude towards their work (Bakker et al., 2008), and mitigate feelings of emotional exhaustion and disengagement, through the discussion of problems and information sharing (Janssen et al., 1999; Lambert et al., 2010; Yildirim, 2008). An explanation for peer support becoming less important when the other variables were taken into account, could be that students may have prioritised support to others, rather than to their peers (Tyler, 2006). A number of students were heavily engaged in the provision of community support in the months and years following the main disasters (e.g., Student Volunteer Army). Some were even the primary source of support for their families. It is likely that the students possessed fewer resources (e.g., emotional and/or time) to support their peers, in addition to existing family and community responsibilities. As an overall result, no inferences can be made from this study suggesting that high levels of perceived peer support are related to low feelings of burnout in a disaster context.

Immediate institutional support was not found to be negatively related to student burnout when controlling for the other types of support, thus hypotheses 3a and 3b were not supported. The reliance on self-reported, retrospective nature of the data may have influenced these results. The questionnaire required participants to recall how UC conveyed its support immediately after the major earthquakes, which may have been difficult for many to remember. Cognitive impairment (e.g., disrupted memory) is a common upshot of the experience of a traumatic event (Kemp, Helton, Richardson, & Blampied, 2011; Helton et al., 2011), and has likely influenced the present findings.

With regards to the moderated effects hypothesised, at low levels of work overload, individuals reporting low levels of perceived peer support experienced significantly higher levels of disengagement than individuals reporting high levels of peer support, thereby partly supporting hypothesis 6b. Peer support was beneficial when there were low levels of work overload. However, peer support had no buffering effect when there were high levels of work overload.

Moreover, at low levels of work overload, individuals reporting higher levels of perceived immediate institutional support experienced significantly higher levels of disengagement than individuals reporting lower levels of perceived immediate institutional support. Immediate institutional support was beneficial when there were low levels of work overload. The higher disengagement levels at high work overload for those with high support may be explained by high levels of work overload and disengagement potentially leading to students looking for more immediate institutional support. Another possibility is that students may have been experiencing high levels of work overload which lead to higher levels of disengagement, therefore they sought more immediate institutional support, and became more aware of the supportive practices implemented at the university.

Overall, there was no buffering effect of both social and institutional support at high levels of work overload. This pattern of results may be explained by the stressor-support matching theory. The stressor-support matching theory suggests that buffering is most likely to occur when there is a reasonable match between the demands posed by the stressful event and the support resources available (Cohen & Wills, 1985; Cutrona & Russell, 1990). Regarding the findings of this study, an example of mismatch between demands and resources is illustrated by family support failing to mitigate work overload issues. Family support, in itself, is insufficient to curtail the pressures of being overloaded with university work. On the other hand, peer support is likely to mitigate the negative impact of work overload on

psychological outcomes, through information and resource sharing (e.g., study groups) and discussing the impact of the shared disaster experience on academic life. Importantly, immediate and extended institutional support should effectively address work overload issues to the extent that staff and administrators understand the challenges faced by students in the post-disaster environment, and provide resources that assist students with workload management and other relevant obstacles to academic achievement.

In summary, the present study's results show that perceptions of family support and extended institutional support for students following the earthquakes have been invaluable during their recovery process. Extended institutional support was related to lower feelings of burnout. Social support from family was also related to lower levels of emotional exhaustion and academic disengagement. Peer support and immediate institutional support showed a moderating effect on the relationship between work overload and disengagement. The effect of work overload on disengagement varied depending on the levels of perceived peer support and immediate institutional support.

Methodological Considerations and Study Limitations

The statistical analyses performed in this study involved correlations and regressions. For defining an appropriate sample size, Green (1991) suggests this equation $N \geq 104 + m$ (where m is the number of IVs) for testing individual predictors in a regression equation. Using this formula, a minimum sample size of 109 participants (i.e., 104 + 5 = 109) was required. Based on this calculation for the study, it was estimated that a sample size of 109 or greater would be appropriate. Additionally, Tabachnick and Fidell (2013) recommend having 20 times more cases than IVs when performing multiple or hierarchical regression analyses, therefore if a researcher plans to include five IVs then it would be good to measure 100 cases. In the present study, a sample size of 271 was obtained which shows a satisfactory sample size. The sample

reflects gender and college proportions found in the population from which the data were collected.

According to Durand (2013), a researcher's failure to detect an interaction effect does not necessarily mean the effect does not exist. The test simply may have lacked power and this is particularly true for interactions, since power is lower for interactions than main effects to begin with (Durand, 2013). For this research, there may not have been enough power due to measurement error (i.e., unreliability of measures, self-report measures, and small sample sizes), which can weaken the observed relationship between an independent and dependent variable (Durand, 2013). Measurement error can also introduce bias in regression coefficients and lower the power of statistical tests for interaction (Jaccard & Wan, 1995).

This study has exposed interesting and unique findings which contribute to burnout research especially in a post-disaster context. However, it must be acknowledged that there are some limitations.

Firstly, the anonymous survey, which was distributed to third and fourth year students, relied on self-reported ratings. Although it can be necessary to use self-reports for exploring individuals' experiences of stressors and strains over time (Burke, Brief, & George, 1993), the self-report methodology can be open to a source of inaccuracy when participants fail to recall the information that is being asked (Mayo, 1983). This could have been a problem associated with this study as some survey scales focused on past behaviours and feelings, and this research was conducted two years after the major Christchurch earthquakes. Consequently, individuals' memories of the natural disaster may have been distorted. The students may have under-estimated or over-estimated their levels of burnout, work overload or perceptions of support. In addition, survey respondents can have the need to appear consistent and rational in their answers to survey questions and might look for similarities in the survey questions (Podsakoff,

MacKenzie, Lee, & Podsakoff, 2003). Hence, this causes associations that would not have existed elsewise in real-life contexts. This consistency effect is likely to be problematic when participants are requested to provide reflective accounts of their behaviours, attitudes, or perceptions (Podsakoff et al., 2003). To help reduce the consistency effect, reverse-coded items were included in each of the scales.

Furthermore, positive and negative affectivity are considered to be continuing characteristics of an individual that can influence their responses to surveys (Podsakoff et al., 2003). Positive and negative affectivity are originally defined as mood dimensions (Watson, & Clark, 1984). Students' moods may have influenced the ratings on the survey's scales. A student who generally has an optimistic outlook in life, may not have considered the negative effects of the disaster, thereby the student's positive affectivity may have resulted in giving positive ratings on the scales. Or a student may have been feeling happy at the time of completing the questionnaire because they had received a compliment earlier on, therefore answering the survey questions in a positive way. On the contrary, a student may generally have a pessimistic outlook in life, thereby the student's negative affectivity may have resulted in answering the survey questions in a negative way. Or a student may have been dealing with the death of a friend or close family member at the time of completing the online questionnaire. Hence, this situation may have lead the individual to interpret and respond to the survey's questions in a negative way. Burke et al. (1993) believe that negative affectivity influences the extent of observed correlations between self-reports of stressors and strains. Additionally, Brief, Burke, George, Robinson, and Webster (1988) found that negative affectivity can inflate the relationships between employee stress and the amount of negativity experienced at work. This could be an issue that has affected this study's results, without the researchers knowing so, therefore it is crucial to interpret the study's findings with caution.

While relying on self-report data has its flaws, Kilfedder, Power, and Wells (2001) argue that stress is an experience based on the perception of a mismatch between demands and resources, and so subjective reporting is paramount.

Finally, this was a cross-sectional study where data was collected at one specific point in time, therefore results should be cautiously interpreted. Further exploration using longitudinal research designs might be beneficial to determine whether perceptions of social support, institutional support, work overload or different feelings of burnout – and the relationships between these variables – change over time in a disaster and recovery context. Moreover, the cross-sectional design of this study means that causality and directionality cannot be assumed. It is reasonable that reverse causality might have occurred. For example, students may have been feeling burnt out and perceived that their work-load was too high prior to the earthquakes, instead of work overload causing students to feel burnt out as a result of the earthquakes.

Practical and Theoretical Implications

Considering that the research exploring burnout among student populations particularly under unpredictable or highly stressful contexts is scarce, the findings of the present study contribute towards understanding the perceptions of university students who have been exposed to a natural disaster. The current research highlights the importance of the role of support and workload on the experience of burnout among students in a disaster context. The finding that high levels of extended institutional support are related to lower feelings of burnout is of particular importance. This finding adds to the limited evidence suggesting that perceived institutional support is associated with lower levels of psychological strain, particularly student burnout (Salmela-Aro et al., 2008). Such findings may be valuable for higher education institutions to better understand their students' perceptions regarding long-term recovery

efforts following natural or man-made disasters. Although immediate institutional support was not significantly associated with student burnout, this does not imply that the provision of essential resources immediately following the natural disasters is futile. Rather, it may signal the protracted effect of burnout (Bruce, 2009; Chauhan, 2009; Mitani, Fujita, Nakata, & Shirakawa, 2006). As the recovery process unfolded over the past three years, the extended availability of institutional support clearly had a positive impact on the psychological health of students.

The findings expose the importance of providing the right resources for individuals during and following a natural disaster. In other words, it does not matter who is providing the support as long as it is the right type of support. Different types of support differentially influence manifestations of stress (Scheck, Kinicki, & Davy, 1997). For less strain to occur, it is necessary for individuals to perceive the support given – immediate or extended – as beneficial. Similarly, this study suggests that organisations should aim to match the resources provided with the needs of their staff. For instance, support is expected to buffer the undesirable effects of stress if the available support is able to address the needs of the circumstance (Cohen & Wills, 1985). Buffering is expected to occur when there is a reasonable match between the needs elicited by the traumatic event and the roles of support (Cohen & Wills, 1985; Cutrona & Russell, 1990). One way of matching the required resources might be to adapt the optimal matching theory into the workplace. Optimal matching theory suggests that social support is a multidimensional construct and that particular types of social support may be most effective when matched with specific types of stressful events (Cutrona & Russell, 1990). Optimal matching theory differentiates emotional support from informational and instrumental support, theorising that their comparative importance as social resources are contingent to the controllability of a stressor (Thrasher, Campbell, & Oates, 2004). When an individual is exposed to an uncontrollable stressor or stressful event, optimal matching theory proposes that

emotional support will demonstrate to be the most effective source in helping the person to recover from the negative emotions elicited by the event (Thrasher et al., 2004). Individuals require more emotional support during uncontrollable events whereas instrumental support is required more during controllable events (Cutrona & Russell, 1990; Turner, Grube, & Meyers, 2001). Coping with two major natural disasters, that have left many buildings damaged and killed 185 people, can be categorised as a negative and uncontrollable event where emotion-focused coping is needed to address the fear, anger, traumatic stress and burnout that can result from a serious catastrophe. Organisations, dealing with the consequences of an earthquake, could provide emotional support to its staff through support groups, one-on-one meetings or electronic sources such as email. Conclusively, in the event of a natural or man-made disaster, an effective long-term support strategy should prioritise emotional and primary care needs in the immediate stage, and instrumental support (with emotional support as a backdrop) throughout the recovery stage(s).

Recommendations for Future Research

While the current research provides evidence that family support and extended institutional support play a significant role in mitigating feelings of burnout among students in the aftermath of a major natural disaster, it is not known what types of support provided by each source promote coping and recovery. Future research should examine the effects of different types of support (e.g., emotional or instrumental) to determine their unique contributions to recovery. Likewise, future researchers should explore earthquake survivors' views of formal interventions that were implemented following a natural disaster, in relation to subsequent well-being, and develop a comprehensive assessment of effective interventions (Wahlström et al., 2013).

Although this study contributes new knowledge on extended intuitional support in a post-disaster context, future research should attempt to replicate these findings in other student populations.

It is not clear from the present research why support provided to students by their peers did not significantly relate to feelings of burnout or why many buffering relationships were not found. Future studies should attempt to recruit a larger sample when replicating this research. While 271 participants were adequate for this study, having a larger sample size might help to address any statistical power issues which may have affected the detection of significant effects.

Conclusion

This study was the first to explore student burnout in relation to perceptions of support and work overload within a post-disaster context. Findings revealed that family support, extended institutional support, and work overload play a significant role in the aetiology of burnout among student populations. No buffering effect of social or institutional support was found at high levels of work overload. However, individuals reporting high levels of peer support and immediate institutional support reported less disengagement at low levels of work overload, than individuals reporting high levels of peer support and immediate institutional support. Future research is needed to ascertain what specific forms of institutional and social support promote coping and recovery, and whether the findings from this study were specific to the Christchurch earthquakes. The findings from this study have implications not only for higher education institutions, but also for corporate organisations, offering a preliminary account of effective sources of support for diminishing the prevalence of burnout following a major disaster.

References

Alarcon, G. M. (2011). A meta-analysis of burnout with job demands, resources, and attitudes. *Journal of Vocational Behaviour, 79*(2), 549-562.

Altindag, A., Ozen, S., & Sir, A. (2005). One-year follow-up study of posttraumatic stress disorder among earthquake survivors in Turkey. *Comprehensive Psychiatry, 46*(5), 328-333.

Awa, W. L., Plaumann, M., & Walter, U. (2010). Burnout prevention: A review of intervention programs. *Patient Education and Counselling, 78*(2), 184-190.

Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job Resources Buffer the Impact of Job Demands on Burnout. *Journal of Occupational Health Psychology, 10*(2), 170-180.

Bakker, A. B., Van Emmerik, H., & Van Riet, P. (2008). How job demands, resources, and burnout predict objective performance: A constructive replication. *Anxiety, Stress & Coping, 21*(3), 309-324.

Baruch-Feldman, C., Brondolo, E., Ben-Dayan, D., & Schwartz, J. (2002). Sources of social support and burnout, job satisfaction, and productivity. *Journal of Occupational Health Psychology, 7*(1), 84-93.

Beehr, T. A., Farmer, S. J., Glazer, S., Gudanowski, D. M., & Nair, V. N. (2003). The enigma of social support and occupational stress: Source congruence and gender role effects. *Journal of Occupational Health Psychology, 8*(3), 220-231.

Beehr, T. A., Jex, S. M., Stacy, B. A., & Murray, M. A. (2000). Work Stressors and Coworker Support as Predictors of Individual Strain and Job Performance. *Journal of Organizational Behavior, 21*(4), 391-405.

Beehr, T. A., Walsh, J. T., & Taber, T. D. (1976). Relationship of stress to individually and organisationally valued states: Higher order needs as a moderator. *Journal of Applied Psychology, 61*(1), 41-47.

Bödvarsdóttir, I. A., & Elklit, A. (2004). Psychological reactions in Icelandic earthquake survivors. *Scandinavian Journal of Psychology, 45*(1), 3-13.

Bres, E., Salanova, M., & Schaufeli, W.B. (2007). In Search of the "Third Dimension" of Burnout: Efficacy or Inefficacy? *Applied Psychology: An International Review, 56*(3), 460-478.

Brief, A. P., Burke, M. J., George, J. M., Robinson, B. S., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology, 73*(2), 193-198.

Briere, J., & Elliott, D. (2000). Prevalence, Characteristics, and Long-Term Sequelae of Natural Disaster Exposure in the General Population. *Journal of Traumatic Stress, 13*(4), 661-679.

Brown, M., & Benson, J. (2005). Managing to Overload? Work Overload and Performance Appraisal Processes. *Group & Organization Management, 30*(1), 99-124.

Bruce, S. P. (2009). Recognizing stress and avoiding burnout. *Currents in Pharmacy Teaching and Learning, 1*(1), 57-64.

Burke, M. J., Brief, A. P., & George, J. M. (1993). The role of negative affectivity in understanding relations between self-reports of stressors and strains: A comment on the applied psychology literature. *Journal of Applied Psychology, 78*(3), 402-412.

Byron, K., & Peterson, S. (2001). The impact of a large-scale traumatic event on individual and organisational outcomes: Exploring employee and company reactions to September 11, 2001. *Journal of Organisational Behaviour, 23*(8), 895-910.

Chauhan, D. (2009). Effect of Job Involvement on Burnout. *Indian Journal of Industrial Relations, 44*(3), 441-453.

Cheng, Y., Chen, I. S., Chen, C.-J., Burr, H., & Hasselhorn, H. M. (2013). The influence of age on the distribution of self-rated health, burnout and their associations with psychosocial work conditions. *Journal of Psychosomatic Research, 74*(3), 213-220.

Christchurch Quake Map (2013). Retrieved November 1, 2013 from http://www.christchurchquakemap.co.nz/all

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioural sciences* (3rd ed.). Hillsdale: Erlbaum.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357.

Cordes, C. L., & Dougherty, T. W. (1993). A Review and an Integration of Research on Job Burnout. *The Academy of Management Review, 18*(4), 621-656.

Crowe, M. (2011). 'Quake brain': Coping with the series of earthquakes in Christchurch. *International Journal of Mental Health Nursing, 20*(6), 381-382.

Cutrona, C., & Russell, D. (1990). Type of social support and specific stress: Toward theory of optimal matching. In B. Sarason, I. Sarason, & G. Pierce (Eds.), *Social support: An interactional view* (pp. 319-336). New York: Wiley.

De Cuyper, N., Raeder, S., Van der Heijden, B. I. J. M., & Wittekind, A. (2012). The association between workers' employability and burnout in a reorganization context: Longitudinal evidence building upon the conservation of resources theory. *Journal of Occupational Health Psychology, 17*(2), 162-174.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512.

Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multi-trait-multi-method analysis. *European Journal of Psychological Assessment, 19*(1), 12-23.

Demerouti, E., Mostert, K., & Bakker, A. B. (2010). Burnout and work engagement: A thorough investigation of the independency of both constructs. *Journal of Occupational Health Psychology, 15*(3), 209-222.

Dorahy, M. J., & Kannis-Dymand, L. (2011). Psychological Distress Following the 2010 Christchurch Earthquake: A Community Assessment of Two Differentially Affected Suburbs. *Journal of Loss and Trauma, 17*(3), 203-217.

Durand, C. P. (2013). Does Raising Type 1 Error Rate Improve Power to Detect Interactions in Linear Regression Models? A Simulation Study. *PLOS One, 8*(8), 1-5.

Dyer, S., & Quine, L. (1998). Predictors of Job Satisfaction and Burnout Among the Direct Care Staff of a Community Learning Disability Service. *Journal of Applied Research in Intellectual Disabilities, 11*(4), 320-332.

Eatough, E. M., Chang, C.-H., Miloslavic, S. A., & Johnson, R. E. (2011). Relationships of role stressors with organizational citizenship behavior: A meta-analysis. *Journal of Applied Psychology, 96*(3), 619-632.

El-Bassel, N., Guterman, N., Bargal, D., & Su, K.-H. (1998). Main and Buffering Effects of Emotional Support on Job and Health-Related Strains. *Employee Assistance Quarterly, 13*(3), 1-18.

Etzion, D. (1984). Moderating effect of social support on the stress–burnout relationship. *Journal of Applied Psychology, 69*(4), 615-622.

Fan, F., Zhang, Y., Yang, Y., Mo, L., Liu, X. (2011). Symptoms of posttraumatic stress disorder, depression, and anxiety among adolescents following the 2008 Wenchuan earthquake in China. *Journal of Traumatic Stress, 24*(1), 44-53.

Frese, M. (1999). Social support as a moderator of the relationship between work stressors and psychological dysfunctioning: A longitudinal study with objective measures. *Journal of Occupational Health Psychology, 4*(3), 179-192.

Fried, Y., & Tiegs, R. B. (1993). The Main Effect Model Versus Buffering Model of Shop Steward Social Support: A Study of Rank-and-File Auto Workers in the U.S.A. *Journal of Organizational Behavior, 14*(5), 481-493.

Galek, K., Flannelly, K. J., Greene, P. B., & Kudler, T. (2011). Burnout, Secondary Traumatic Stress, and Social Support. *Pastoral Psychology, 60*(5), 633-649.

Gingras, J., De Jonge, L. A., & Purdy, N. (2010). Prevalence of dietician burnout. *Journal of Human Nutrition and Dietetics, 23*(3), 238-243.

Green, S. B. (1991). How Many Subjects Does It Take To Do A Regression Analysis? *Multivariate Behavioural Research, 26*(3), 499-510.

Halbesleben, J. R. B. (2006). Sources of social support and burnout: A meta-analytic test of the conservation of resources model. *Journal of Applied Psychology, 91*(5), 1134-1145.

Halbesleben, J. R. B., & Demerouti, E. (2005). The construct validity of an alternative measure of burnout: Investigating the English translation of the Oldenburg Burnout Inventory. *Work & Stress, 19*(3), 208-220.

Helton, W. S., Head, J., & Kemp, S. (2011). Natural disaster induced cognitive disruption: Impacts on action slips. *Consciousness and Cognition, 20*(4), 1732-1737.

Hombrados-Mendieta, I., & Cosano-Rivas, F. (2013). Burnout, workplace support, job satisfaction and life satisfaction among social workers in Spain: A structural equation model. *International Social Work, 56*(2), 228-246.

Innstrand, S., Langballe, E., Falkum, E., & Aasland, O. (2011). Exploring within- and between-gender differences in burnout: 8 different occupational groups. *International Archives of Occupational and Environmental Health, 84*(7), 813-824.

Iverson, R. D. (1992). *Employee intent to stay: An empirical test of a revision of the Price Mueller Model*. Unpublished dissertation, University of Iowa, Iowa City.

Jaccard, J., & Wan, C. K. (1995). Measurement error in the analysis of interaction effects between continuous predictors using multiple regression: Multiple indicator and structural equation approaches. *Psychological Bulletin, 117*(2), 348-357.

Janssen, P. P. M., Schaufeli, W. B., & Houkes, I. (1999). Work-related and individual determinants of three burnout dimensions. *Work & Stress, 13*(1), 74-86.

Jimmieson, N. L., McKimmie, B. M., Hannam, R. L., & Gallagher, J. (2010). An investigation of the stress-buffering effects of social support in the occupational stress process as a function of team identification. *Group Dynamics: Theory, Research, and Practice, 14*(4), 350-367.

Job, R. F. S. (2002). The Effects of Uncontrollable, Unpredictable Aversive and Appetitive Events: Similar Effects Warrant Similar, but not Identical, Explanations? *Integrative Physiological & Behavioural Science, 37*(1), 59-81.

Jung, E. (2013). Work stress and burnout: The mediating role of mood regulation among information technology professionals. *Journal of Workplace Behavioural Health, 28*(2), 94-106.

Kalliath, T. J., O'Driscoll, M. P., Gillespie, D. F., & Bluedorn, A. C. (2000). A test of the Maslach Burnout Inventory in three samples of healthcare professionals. *Work & Stress, 14*(1), 35-50.

Kaniasty, K. (2012). Predicting social psychological well-being following trauma: The role of post-disaster social support. *Psychological Trauma: Theory, Research, Practice, and Policy, 4*(1), 22-33.

Kaniasty, K., & Norris, F. H. (1993). A test of the social support deterioration model in the context of natural disaster. *Journal of Personality and Social Psychology, 64*(3), 395-408.

Kemp, S., Helton, W. S., Richardson, J. J., & Blampied, N. M. (2011). Sleeplessness, stress, cognitive disruption and academic performance following the September 4, 2010, Christchurch earthquake. *Australasian journal of disaster and trauma studies, 2011*(2), 11-18.

Kilfedder, C. J., Power, K. G., & Wells, T. J. (2001). Burnout in psychiatric nursing. *Journal of Advanced Nursing, 34*(3), 383-396.

Koeske, G. F., & Koeske, R. D. (1989). Work Load and Burnout: Can Social Support and Perceived Accomplishment Help? *Social Work, 34*(3), 243-248.

Kokkinos, C. M. (2007). Job stressors, personality and burnout in primary school teachers. *British Journal of Educational Psychology, 77*(1), 229-243.

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress, 19*(3), 192-207.

Kwon, Y.-S., Maruyama, S., & Morimoto, K. (2001). Life events and posttraumatic stress in Hanshin-Awaji earthquake victims. *Environmental Health and Preventive Medicine, 6*(2), 97-103.

Lambert, E. G., Altheimer, I., & Hogan, N. L. (2010). Exploring the relationship between social support and job burnout among correctional staff. *Criminal Justice and Behaviour, 37*(11), 1217-1236.

Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*(2), 123-133.

Leiter, M. P., & Maslach, C. (2009). Nurse turnover: the mediating role of burnout. *Journal of Nursing Management, 17*(3), 331-339.

Loonstra, B., Brouwers, A., & Tomic, W. (2009). Feelings of existential fulfilment and burnout among secondary school teachers. *Teaching and Teacher Education, 25*(5), 752-757.

Louw, D., George, E., & Esterhuyse, K. (2011). Burnout amongst urban secondary school teachers in Namibia. *SAJIP: South African Journal of Industrial Psychology, 37*(1), 189-195.

Mallinckrodt, B., & Leong, F. T. (1992). Social support in academic programs and family environments: Sex differences and role conflicts for graduate students. *Journal of Counselling & Development, 70*(6), 716-723.

Maroco, J., & Campos, J. A. (2012). Defining the Student Burnout Construct: A Structural Analysis from Three Burnout Inventories. *Psychological Reports, 111*(3), 814-830.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397-422.

Mayo, P. R. (1983). Personality traits and the retrieval of positive and negative memories. *Personality and Individual Differences, 4*(5), 465-471.

McCarty, W. P., Zhao, J.S., Garland, B. E. (2007). Occupational stress and burnout between male and female police officers: Are there any gender differences? *Policing: An International Journal of Police Strategies & Management, 30*(4), 672 – 691.

Mitani, S., Fujita, M., Nakata, K., & Shirakawa, T. (2006). Impact of post-traumatic stress disorder and job-related stress on burnout: A study of fire service workers. *The Journal of Emergency Medicine, 31*(1), 7-11.

Mohammad Azeem, S. (2013). Conscientiousness, Neuroticism and Burnout among Healthcare Employees. *International Journal of Academic Research in Business & Social Sciences, 3*(7), 467-477.

Neumann, Y., Finaly-Neumann, E., & Reichel, A. (1990). Determinants and Consequences of Students' Burnout in Universities. *The Journal of Higher Education, 61*(1), 20-31.

Nirel, N., Goldwag, R., Feigenberg, Z., Abadi, D., & Halpern, P. (2008). Stress, Work Overload, Burnout, and Satisfaction among Paramedics in Israel. *Pre-hospital and Disaster Medicine, 23*(06), 537-546.

Norris, F. H., & Kaniasty, K. (1996). Received and perceived social support in times of stress: A test of the social support deterioration deterrence model. *Journal of Personality and Social Psychology, 71*(3), 498-511.

O'Driscoll, M. P., Brough, P., & Kalliath, T. J. (2004). Work/family conflict, psychological well-being, satisfaction and social support: A longitudinal study in New Zealand. *Equal Opportunities International, 23*(1/2), 36-56.

Örtqvist, D., & Wincent, J. (2006). Prominent consequences of role stress: A meta-analytic review. *International Journal of Stress Management, 13*(4), 399-422.

Pas, E. T., Bradshaw, C. P., & Hershfeldt, P. A. (2012). Teacher- and school-level predictors of teacher efficacy and burnout: Identifying potential areas for support. *Journal of School Psychology, 50*(1), 129-145.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Price, J., & Mueller, C. (1981). *Professional turnover: The case of nurses*. New York: SP Medical and Scientific.

Purvanova, R. K., & Muros, J. P. (2010). Gender differences in burnout: A meta-analysis. *Journal of Vocational Behaviour, 77*(2), 168-185.

Ray, E. B., & Miller, K. I. (1994). Social Support, Home/Work Stress, and Burnout: Who can Help? *The Journal of Applied Behavioural Science, 30*(3), 357-373.

Russell, D. W., Altmaier, E., & Van Velzen, D. (1987). Job-related stress, social support, and burnout among classroom teachers. *Journal of Applied Psychology, 72*(2), 269-274.

Salanova, M., Llorens, S., García-Renedo, M., Burriel, R., Bresó, E., & Schaufeli, W. B. (2005). Towards a Four-Dimensional Model of Burnout: A Multigroup Factor-Analytic Study Including Depersonalisation and Cynicism. *Educational and Psychological Measurement, 65*(5), 807-819.

Salmela-Aro, K., Kiuru, N., Pietikäinen, M., & Jokela, J. (2008). Does school matter? The role of school context in adolescents' school-related burnout. *European Psychologist, 13*(1), 12-23.

Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement and sickness absenteeism. *Journal of Organizational Behaviour, 30*(7), 893-917.

Schaufeli, W. B., Martínez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and Engagement in University Students: A Cross-National Study. *Journal of Cross-Cultural Psychology, 33*(5), 464-481.

Schaufeli, W.B., Leiter, M.P., Maslach, C., & Jackson, S.E. (1996). Maslach Burnout Inventory - General Survey. In C. Maslach, S.E. Jackson, & M.P. Leiter (Eds.), *The Maslach Burnout Inventory – Test Manual* (3rd ed). Palo Alto, CA: Consulting Psychologists Press.

Scheck, C. L., Kinicki, A. J., & Davy, J. A. (1997). Testing the Mediating Processes between Work Stressors and Subjective Well-Being. *Journal of Vocational Behaviour, 50*(1), 96-123.

Shakespeare-Finch, J. (2006). Traumatic stress management: Risk, resilience and vulnerability. *National Emergency Response, 19*(2), 8-9.

Stokes, J., & Wilson, D. (1984). The inventory of socially supportive behaviours: Dimensionality, prediction, and gender differences. *American Journal of Community Psychology, 12*(1), 53-69.

Tabachnick, B. G. & Fidell, L.S. (2013). *Using Multivariate statistics* (6th ed.). Boston: Pearson Education.

Tait, M. (2011). Christchurch Earthquake: 100,000 homes damaged, 10,000 unsavable. *The New Zealand Herald*. Retrieved from http://www.nzherald.co.nz/hawkes-bay-today/news/article.cfm?c_id=1503462&objectid=11020467

Taormina, R. J., & Law, C. M. (2000). Approaches to preventing burnout: the effects of personal stress management and organizational socialization. *Journal of Nursing Management, 8*(2), 89-99.

Thrasher, J. F., Campbell, M. K., & Oates, V. (2004). Behaviour-Specific Social Support for Healthy Behaviours Among African American Church Members: Applying Optimal Matching Theory. *Health Education & Behaviour, 31*(2), 193-205.

Turner, J. W., Grube, J. A., & Meyers, J. (2001). Developing an optimal match within online communities: an exploration of CMC support communities and traditional support. *Journal of Communication, 51*(2), 231-251.

Tyler, K. (2006). The impact of support received and support provision on changes in perceived social support among older adults. *International Journal of Aging & Human Development, 62*(1), 21-38.

Wahlström, L., Michélsen, H., Schulman, A., & Backheden, M. (2013). Support, opinion of support and psychological health among survivors of a natural disaster. *International Journal of Social Psychiatry, 59*(1), 40-47.

Wang, X. L., Shi, Z. B., Ng, S. M., Wang, B., & Chan, C. L. W. (2011). Sustaining Engagement Through Work in Post-disaster Relief and Reconstruction. *Qualitative Health Research, 21*(4), 465-476.

Wareham, D. G., & Bourke, M. (2012). The 2010–2011 Canterbury earthquakes: impact on the liquid waste management system of Christchurch, New Zealand. *Civil Engineering and Environmental Systems, 30*(1), 1-14.

Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96*(3), 465-490.

Weckworth, A., & Flynn, D. (2006). Effect of sex on perceived support and burnout in university students. *College Student Journal, 40,* 237–249.

Wind, T. R., & Komproe, I. H. (2012). The mechanisms that associate community social capital with post-disaster mental health: A multilevel model. *Social Science & Medicine, 75*(9), 1715-1720.

Yildirim, İ. (2008). Relationships between burnout, sources of social support and sociodemographic variables. *Social Behavior and Personality, 36*(5), 603-616.

Yuan, K. C., Ruo Yao, Z., Zhen Yu, S., Xu Dong, Z., Jian Zhong, Y., Edwards, J. G., & Edwards, G. D. (2013). Prevalence and predictors of stress disorders following two earthquakes. *International Journal of Social Psychiatry, 59*(6), 525-530.

Appendices

Appendix A: Email Requesting to Distribute Survey Link

Hi <insert lecturer's name here>,

I am a final year postgraduate student who is studying towards a Master of Science in Applied Psychology at The University of Canterbury.

I am currently writing my thesis on UC students in the post-earthquake environment and would like to invite 300-level and 400-level students to complete the survey below. The survey is completely anonymous and shouldn't take longer than 10 or 15 minutes. Students have a chance to go in the draw to win one of eight prizes. They will be asked to enter their email address which is uploaded onto a separate database to preserve anonymity.

Every student's response is valuable as a summary report will be presented to the University which will allow the institution to better understand students' perceptions regarding the University's recovery efforts.

UC Students in the Post-Earthquake Environment:

http://canterbury.qualtrics.com/SE/?SID=SV_3ObiRT33x6z02EJ

Since my dissertation depends on the answer responses of these students, I would greatly and kindly appreciate it if you could please email the survey link to any 300-level or 400-level students that you teach? Please send it via email because I feel this will increase the response rate.

This study has been approved by Human Ethics but if you wish to discuss this further please email me or contact my supervisor from the Psychology department, Joana Kuntz.

Kind Regards,

Sonja Rae

Appendix B: Information and Consent Page

INFORMATION and CONSENT TO PARTICIPATE IN A SURVEY RESEARCH PROJECT

"Perceptions of Support, Work Overload and Feelings of Burnout in a Post-Disaster Environment"

You are invited to participate in a research study conducted by Dr. Joana Kuntz, Dr. Katharina Näswall and Sonja Rae from the Psychology Department at the University of Canterbury.

PURPOSE OF THE STUDY

The purpose of this study is to explore the relationship between UC students' perceptions of work overload, support (from the university, peers and family) and feelings of burnout following the Christchurch earthquakes of 2010 and 2011.

PROCEDURE

If you volunteer to participate in this study, you will be asked to provide information regarding: 1) how burnt out you are currently feeling, 2) how much support you received from the university, peers and family after the earthquakes, and 3) how much work overload you are experiencing. If you have fully completed this survey, you will go in the draw to win one of the following eight prizes:

- 2x $200 Westfield vouchers
- 2x $100 Westfield vouchers
- 4x $50 Westfield vouchers

If you are interested in the prize draw, you will be asked to provide an e-mail address at the end of the questionnaire, but this information will be uploaded to a separate database from your responses to preserve anonymity. That means if we are able to contact you via e-mail, we won't be able to match your identity with the responses provided.

POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable risks associated with this study, though some discomfort may occur as a short section of the survey asks you whether you are experiencing burnout, and if you consider yourself employable once you graduate. Please note that you can withdraw from this study at any point of time by closing the survey. You can request to withdraw the data provided at the end of the survey, using the final comments section. Once you have submitted your responses, and if you did not express your desire to withdraw in the comments section, we will not be able to withdraw the data.

POTENTIAL BENEFITS TO PARTICIPANTS AND ORGANISATIONS

This study's results will be used to understand the levels of burnout among UC students, how much support they received (and whether it was perceived as adequate), and how much work overload they are experiencing in the aftermath of the 2010 and 2011 earthquakes. Although this project has not been commissioned by UC, a summary report without identifying

information will be presented to the University, as it will allow the institution to better understand students' perceptions regarding the University's recovery efforts.

CONFIDENTIALITY

The researchers are very mindful of the need to protect participants' interests. Any information that you provide will be treated as confidential. Only the principal researcher and named co-investigators, who have signed a formal confidentiality agreement, will have access to raw data. Under no circumstances will any data you supply be disclosed to a third party in a way that could reveal its source (assuming this was possible to ascertain from the anonymous questionnaire). The survey data will be stored on password-protected computers in secured locations in the Psychology Department. Because this research involves anonymous questionnaires you can be assured that your name will not be revealed in any reports or publications generated by this study (i.e., Summary report for UC; MSc Thesis available from the UC library database, and peer-reviewed journals).

PARTICIPATION AND WITHDRAWAL

Participation is entirely voluntary. This survey may take up to 15 to 20 minutes. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. If you want to withdraw survey data, please note this at the end of the survey under the "comments" section. Withdrawing will exclude you from going in the draw to win a prize and any data you have provided will be discarded. However, if you experience distress, please contact one of the following:

- Government Helpline (0800 779 997)
- Earthquake Helpline (0800 777 846)
- Psychiatric Emergency Service (PES) (364 0482) or (0800 920 092)
- Student Health Centre (364 2402 or 6402 from campus phones.)

RIGHTS OF RESEARCH SUBJECTS

The project has been reviewed and approved by the appropriate department and the University of Canterbury's Human Ethics Committee. If you have any questions or concerns about this research, please contact Joana Kuntz (joana.kuntz@canterbury.ac.nz).

PARTICIPANT CONSENT

I have read and understood the description of the above-mentioned project.

I understand that my participation will involve completing an anonymous questionnaire

I understand that I am eligible to win a prize if I fully complete the survey

I fully accept that I am giving my consent to participate in this research study.

I understand and am satisfied with all the measures that will be taken to protect my identity and ensure that my interests are protected.

I understand that I can withdraw from the study and withdraw the data I have provided until I submit my responses.

I agree to publication of results, with the understanding that my anonymity will be preserved.

- ❑ I ACCEPT
- ❑ I DO NOT ACCEPT

Appendix C: Online Survey

Age:

Gender:

- ❍ Male
- ❍ Female

Please state your College:

- ❍ Arts
- ❍ Business
- ❍ Engineering
- ❍ Science
- ❍ Law
- ❍ Education

Please state your Department: (e.g. Civil and Natural Resources Engineering or Psychology or Economics etc.)

Please state the type of degree you are studying towards: (e.g. BA, BSc, BE(Hons))

Please state whether you have left The University of Canterbury during the last three years to study elsewhere for a period of time:

- ❍ Yes
- ❍ No

Immediate Institutional Support

The University of Canterbury conveyed its support <u>in the weeks after the major earthquakes</u>…

(1 = *strongly disagree*, 5 = *strongly agree*)

1. Through e-mail communications (e.g., confirmed that I was safe).

2. By making counselling services available for those in need.

3. By effectively handling evacuation and other safety procedures since the first major earthquake.

4. Through the provision of opportunities for volunteering and donating money to assist with the recovery process.

5. By allowing me to resume my academic work only when I felt ready to do so.

Comments: (e.g., other forms of immediate support; areas where support could have been offered or improved)

Extended Institutional Support

The University of Canterbury conveyed its support over the past three years…

(1 = *strongly disagree*, 5 = *strongly agree*)

1. By making formal adjustments to its academic requirements (e.g. decreased workload, flexible due dates for assessments).

2. By keeping students informed of the UC recovery process.

3. By involving students in the UC recovery process.

4. By showing understanding of the stress students are still experiencing years after the major earthquakes.

5. By providing me with the level of support I need.

6. By providing me access to new and repaired recreational facilities and buildings (cafes, libraries, gyms, study rooms, lecture rooms).

7. By caring about my well-being and mental health during my academic studies (e.g. providing leisure activities to partake in, promoting fitness etc.).

8. By having help available for when I had a problem or query within my university life (e.g. responding quick to e-mails, answering phone calls, scheduling appointments).

Comments: (e.g., areas where support should be offered or improved)

Social Support (Peer and Family)

The following statements concern your perceptions of support from peers and relatives in the aftermath of the CHCH earthquakes.

(1 = *strongly disagree*, 5 = *strongly agree*)

1. Over the past three years, I have received helpful information or advice from my family.

2. Over the past three years, I have received helpful information or advice from my colleagues at the university.

3. Over the past three years, my family has expressed care and concern for me.

4. Over the past three years, my colleagues at the university have expressed care and concern for me.

5. I believe that my family is there for me when I need them.

6. I believe that my colleagues at the university are there for me when I need them.

7. I believe that my family understands any difficulties I go through.

8. I believe that my colleagues at the university understand any difficulties I go through.

Comments:

Work Overload

The following statements concern your feelings towards academic work (University).

(1 = *strongly disagree*, 5 = *strongly agree*)

1. I am given enough time to do the work expected of me at the university.

2. It happens fairly often that I have to complete assignments under a heavy time pressure.

3. I often have too much to do at the university.

4. My courses require me to work very hard mentally.

5. I often have to work long hours to complete course assignments.

6. My university work leaves me with very little time to get everything done on time.

7. I often don't have time to finish my university assignments.

Comments:

Burnout

The following statements concern your feelings at work (University).

(1 = *strongly disagree*, 5 = *strongly agree*)

1. I feel tired even before coming to University.

2. I talk about my academic work negatively (e.g., classes, workload).

3. I need more time to relax and feel better.

4. I tolerate academic work pressures well.

5. Over the past three years, I've become less mindful of academic assignments and do the work mechanically.

6. I feel emotionally drained from doing academic work.

7. I have enough energy for leisure.

8. I feel sickened by my academic work.

9. I feel worn out after a day at the University.

10. I can manage my academic workload well.

11. I feel engaged with my academic work.

12. I've become disconnected from my academic work.

Comments:

Are you a:

- ❍ 300-level student
- ❍ 400-level student

If you happen to be experiencing any distress, please contact one of the following:

- Government Helpline (0800 779 997)
- Earthquake Helpline (0800 777 846)
- Psychiatric Emergency Service (PES) (364 0482) or (0800 920 092)
- Student Health Centre (364 2402 or 6402 from campus phones.)